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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,620

03/23/2007

Peter R. Jepson

13194\*10 (MO7704)

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7590

04/05/2010

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EXAMINER

TOLAN, EDWARD THOMAS

ART UNIT

PAPER NUMBER

3725

MAIL DATE

DELIVERY MODE

04/05/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,620	<b>Applicant(s)</b> JEPSON, PETER R.	
	<b>Examiner</b> EDWARD TOLAN	<b>Art Unit</b> 3725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 1-27 and 32-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

The finality of the restriction is repeated. Applicant has argued that the independent claims do not have technical differences. Elected group II claims have the technical differences of collar attachment to create a sputtering target. The group II claims are product claims that require a sputtering target with a collar. The skilled artisan would not recognize that the group I and IV process claims are directed to sputtering targets with collars as they are set forth as methods of forming a pot and plate respectively, therefore the Examiner believes that a showing of technical differences is met and that the restriction is proper. The forging and deep drawing steps as claimed that Applicant sets forth as linking technical features for claims 1,28 and 34 are for forming plates and cups (claims 1 and 34) and do not have the technical features for creating a product that has a collar (claim 28).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 28-31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jepson et al. (2002/0112789) in view of Kulkarni et al. (6,283,357) and further in view of Collier (6,142,001). Jepson discloses a process for manufacturing a sputtering target (11) by steps of (a) cutting an ingot of tantalum into a first workpiece (12), (b) forging the

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workpiece ([0026], line 9), (c) annealing ([0026], line 12), (d) forging back ([0026], line 16), (e,f,h) forging back ([0026], lines 35-37)), (g,i) annealing ([0026], line 32 and [0027]) and (j) rolling ([0028]). Jepson discloses ([0026], lines 35-37, [0027] and [0029]) that forging and annealing steps are repeated as necessary within method steps (e-i) in order to prepare the workpiece for rolling. Jepson does not disclose deep drawing and attaching a collar to the target. Kulkarni teaches (column 3, lines 23-30) that it is known to deep draw a rolled target plate produced by a pressing, annealing and rolling operation. The plate (10) is bonded with cladding (14) and formed by deep drawing (column 4, lines 47-60). A collar (22) is welded to the deep drawn target (column 4, lines 61-67). It would have been obvious to one skilled in the art at the time of invention to deep draw the target of Jepson as taught by Kulkarni and attach a collar thereto in order to form a known cup shape magnetron sputtering target.

Jepson in view of Kulkarni does not disclose finite element workpiece modeling. Collier teaches (column 3, lines 14-20) that it is known to use finite element techniques to model a billet (1) prior to drawing the billet in a die. It would have been obvious to one skilled in the art at the time of invention to model the workpiece of Jepson in view of Kulkarni as taught by Collier in order to determine a target size during processing.

### ***Response to Arguments***

Applicant's arguments filed 1-25-2010 have been fully considered but they are not persuasive. Applicant has argued that Jepson is not applicable because side forging steps are disclosed.

Applicant argues "Upset forging compresses a workpiece (generally a cylinder shape) in a direction along or in-line with its longitudinal axis. Forging back draws the compressed workpiece back into a more elongated cylinder shape along the same axis". This appears to be a more narrow definition than the common upset forging definition (see wikipedia for example), length decreases, cross-section increases. See for example Maki et al. (4,939,829) where figure 2 (col. 7, lines 53-55) shows upsetting where a workpiece is upset between a die (25) and punch (28) and the work is allowed to expand in cross-section to its side.

The Examiner does not agree with the scope of Applicant's characterization of upset forging and believes that Applicant's claims do not positively set forth upset forging along a single axis. Applicant also argues (response, page 4, paragraph 2) that by upset forging, the annealed fifth workpiece has an improved through-thickness texture gradient. This texture improvement is unclaimed and cannot be read into the claims.

Sputtering targets are formed by multiple forging steps with intermediate annealing and in particular Jepson states [0026] that "the upset forge back cycle may be repeated as many times as necessary to achieve uniform texture". Therefore, the Examiner's position is that it is obvious to the skilled artisan to provide as many upset forge and upset forge back steps as necessary to arrive at a desired texture. The sputtering target of Jepson in view of Kulkarni has a forged texture with a collar welded thereto.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDWARD TOLAN whose telephone number is (571)272-4525. The examiner can normally be reached on M-F.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edward Tolan/  
Primary Examiner, Art Unit 3725